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# TRANSMITTAL FORM

*(to be used for all correspondence after initial filing)*

| | | | |
|---|---|---|---|
| Total Number of Pages in This Submission | 17 | Application Number | 09/505,556 |
| | | Filing Date | Feb 17, 2000 |
| | | First Named Inventor | Moorer, James A. |
| | | Art Unit | 2644 |
| | | Examiner Name | Mei, Xu |
| | | Attorney Docket Number | 81312 8017 |

## ENCLOSURES *(Check all that apply)*

- ☐ Fee Transmittal Form
  - ☐ Fee Attached
- ☐ Amendment / Reply
  - ☐ After Final
  - ☐ Affidavits/declaration(s)
- ☐ Extension of Time Request
- ☐ Express Abandonment Request
- ☐ Information Disclosure Statement
- ☐ Certified Copy of Priority Document(s)
- ☐ Reply to Missing Parts/ Incomplete Application
  - ☐ Reply to Missing Parts under 37 CFR 1.52 or 1.53
- ☐ Drawing(s)
- ☐ Licensing-related Papers
- ☐ Petition
- ☐ Petition to Convert to a Provisional Application
- ☐ Power of Attorney, Revocation Change of Correspondence Address
- ☐ Terminal Disclaimer
- ☐ Request for Refund
- ☐ CD, Number of CD(s) _____
  - ☐ Landscape Table on CD
- ☐ After Allowance communication to (TC)
- ☐ Appeal Communication to Board of Appeals and Interferences
- ☐ Appeal Communication to TC **(Appeal Notice, Brief, Reply Brief)**
- ☐ Proprietary Information
- ☐ Status Letter
- ☒ Other Enclosure(s) (please identify below):

Please see remarks below.

Remarks

Request for Certificate of Correction (15 pages)

Certificate of Correction PTO/SB/44 (1 page)

Return Receipt Postcard

Certificate of Correction

NOV 06 2006

## SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

| | | | |
|---|---|---|---|
| Firm Name | FITCH, EVEN, TABIN & FLANNERY | | |
| Signature | | | |
| Printed name | Thomas F. Lebens | | |
| Date | 10/31/06 | Reg. No. | 38221 |

## CERTIFICATE OF TRANSMISSION/MAILING

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below.

| | | | |
|---|---|---|---|
| Signature | | | |
| Typed or printed name | Thomas F. Lebens | Date | 10/31/06 |

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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DOCKET NO. 81312/8017

OIPE IAP69 NOV 02 2006 PATENT & TRADEMARK OFFICE

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

| | | |
|---|---|---|
| Appl. No. | : | 09/505,556 |
| Applicant(s) | : | Moorer, James A. |
| Filed | : | 2/17/2000 |
| TC/A.U. | : | 2644 |
| Examiner | : | Mei, Xu |
| Docket No. | : | 81312 |
| Customer No. | : | 22242 |
| Confirmation No. | : | 6818 |

I hereby certify that this paper is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this date October 31, 2006.

Thomas F. Lebens
Registration No. 38,221
Attorney for Applicant(s)

**REQUEST FOR CERTIFICATE OF CORRECTION PURSUANT TO 37 C.F.R. § 1.322**

Certificate of Correction Branch
Commissioner for Patents
Post Office Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Transmitted herewith is a Certificate of Correction for United States Patent 7,043,312 issued May 9, 2006. Upon reviewing the patent, the following errors were noted and should be corrected as follows:

In the Specification:

First page, column 1, lines 1-3, after "AUGMENTATION" delete "FOR HIGHER RESOLUTION AND MULTICHANNEL SOUND".

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In the CLAIMS:

Claim 4, column 23, line 18, after "digital" insert --signal--.

Claim 10, column 23, line 53, delete "media;" and insert --media,--.

Claim 16, column 24, line 22, delete "no" and insert --not--.

Claim 23, column 24, line 52, delete "claim" and insert --claims--.

Claim 26, column 25, line 2, after "second" insert --media, wherein the first and second media have distinct logical structures--.

Claim 30, column 25, line 11, delete "claim" and insert --claims--.

Claim 31, column 25, line 13, delete "claim" and insert --claims--.

Claim 33, column 25, line 21, delete "claim" and insert --claims--.

Claim 34, column 25, line 23, delete "claim" and insert --claims--.

Claim 35, column 25, line 37, delete "recombination" and insert --recombining--.

Claim 38, column 26, line 14, delete "ia" and insert --is--.

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Claim 39, column 26, line 16, delete "claim" and insert --claims--.

Claim 42, column 26, line 23, delete "claim" and insert --claims--.

Claim 44, column 26, line 29, delete "claim" and insert --claims--.

Claim 45, column 26, line 34, delete "claim" and insert --claims--.

Claim 46, column 26, line 36, delete "claim" and insert --claims--.

The Certificate of Correction sets forth these corrections.

**Remarks**

A review of these documents confirms that the errors were made in the printing of the patent. For the correction to the specification, please see Exhibit "A", page 1 of the specification as filed on February 17, 2000, as retrieved from the Patent Application Information Retrieval's ("PAIR'S") Image File Wrapper. For the corrections to the claims, please see Exhibit "B" pages 3-10 of the claims from the Amendment filed on October 14, 2004, as retrieved from PAIR'S Image File Wrapper. Specifically, please see the following:

For claim 4, see page 3 of 15, claim 7, line 4;

For claim 10, see page 4 of 15, claim 71, line 12;

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For claim 16, see page 6 of 15, claim 80, line 2;

For claim 23, see page 7 of 15, claim 108, line 1;

For claim 26, see page 7 of 15, claim 107, line 11;

For claim 30, see page 3 of 15, claim 13, line 1;

For claim 31, see page 3 of 15, claim 14, line 1;

For claim 33, see page 8 of 15, claim 112, line 1;

For claim 34, see page 8 of 15, claim 114, line 1;

For claim 35, see page 9 of 15, claim 117, line 5;

For claim 38, see page 4 of 15, claim 73, line 3;

For claim 39, see page 4 of 15, claim 74, line 1;

For claim 42, see page 5 of 15, claim 77, line 1;

For claim 44, see page 5 of 15, claim 79, line 1;

For claim 45, see page 9 of 15, claim 121, line 1; and

For claim 46, see page 10 of 15, claim 123, line 1.

Since these errors for which a Certificate of Correction is requested are a result of the United States Patent and Trademark Office mistake, no fee is due (35 U.S.C. § 254). Please charge any deficiency or overpayment in fees to Deposit Account 06-1135.

Respectfully submitted,

FITCH, EVEN, TABIN & FLANNERY

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OIPE IAP69
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PATENT & TRADEMARK OFFICE



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
APPLICATION FOR PATENT

# CD PLAYBACK AUGMENTATION

Inventor: James A. Moorer

09/556,556

## Background of the Invention

This invention relates to the storage of audio information on compact disks, and more specifically, to augmenting the standard, stereo compact disk with additional audio information, such as for higher resolution or multi-channel sound.

The compact disk (CD) has become the primary source for the delivery of recorded music due to its advantages over other media previously available to the consumer. It is of relatively small size and requires little special handling. As it is digitally recorded, it is subject neither to surface noise nor wear during playback.

The CD also has a number of disadvantages and limitations. Some of these inherent in nature of digital audio: Whenever music or other audio data is digitized, a certain amount of information is necessarily lost. Although this can be minimized by increasing the sampling rate, the number bits per sample, or both, there will still be some unavoidable loss. Although when a master recording is made digitally it usually employs this sort of higher resolution, when the actual CD itself is produced it must conform to the lower standards found in the accepted consumer format. For this reason, many audiophiles prefer to use analog vinyl recordings despite their surface noise when played, their resultant wear, and their more delicate handling and equipment requirements.

Another limitation imposed by the accepted standard for the CD is that of two channel, stereo sound. Within motion picture soundtracks and video games, multi-channel surround sound has become common, whether through having more than two speakers (such as for 5.1 channel or other cinema techniques), or

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**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in this application.

**Listing of claims:**

4. (Currently Amended) A method of storing audio data on a compact disk (CD) ~~on a~~ CD, comprising:

storing ~~in the~~ in an audio portion of said CD a first two track audio signal, wherein said first two track audio signal is reproducible by playing said CD on a conventional audio CD player;

storing additional audio data on said CD outside of said audio portion according to a distinct logical structure requiring a differing read process than the audio portion of the CD; and

storing control information on said CD, wherein said first two track audio signal and said additional audio data ~~can be~~ are adapted to be combined through use of said control information to reproduce a unified audio signal.

5. (Original) The method of claim 4, wherein said unified audio signal comprises a second two track audio signal of higher resolution than said first two track audio signal.

6. (Original) The method of claim 4, wherein said unified audio signal comprises more than two channels.

7. (Currently Amended) A method for storing an audio signal of two or more channels, comprising:

deriving data from the audio signal, said data comprising: ~~data, comprising:~~

a plurality of digital signals, wherein a first digital signal of said plurality of digital signals is a first two track audio signal; and



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NOV 16 2006

control information~~, wherein a reproduction of~~ adapted for use in reproducing said audio signal ~~information can be produced~~ from said plurality of digital signals ~~by use of said control information~~;

storing said first digital signal on a first medium;

storing the remainder of said plurality of digital signals on one or more second media, wherein said first and second media are distinct physical media; and

storing the control information.

8. (Original) The method of claim 7, wherein said first medium is a rewritable memory.

9. (Original) The method of claim 8, further comprising:
compressing said first digital signal prior to storing on said first medium.

10. (Currently Amended) The method of claim 7, wherein said first medium ~~is the~~ is an audio portion of a compact disk (CD), and wherein said first digital signal ~~can be reproduced~~ is adapted for reproduction on a conventional CD player.

11. (Currently Amended) The method of claim 115, wherein said one or more second media ~~is the~~ is a CD-ROM portion ~~of said~~ of a CD.

12. (Original) The method of claim 11, wherein said control information is stored in the CD-ROM portion of said CD.

13. (Currently Amended) The method of either of claims 7 or 107, wherein said audio signal ~~audio~~ comprises more than two channels.

14. (Original) The method of either of claims 7 or 107, wherein said reproduction of said audio signal comprises a second two track audio signal of higher resolution than a reproduction based on said first two track audio signal alone.



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(Claims 15-70 have been cancelled.)

71. (Currently Amended) A method for storing an N-channel audio signal, wherein N is an integer greater than two, comprising:

deriving from said N-channel audio signal a two channel representation;

recording said two channel representation on a first medium;

forming additional information, comprising:

a residual dependent ~~upon the~~ upon a difference between said N-channel audio signal and said two channel representation; and

control information, including data ~~that can be used to recombine~~ adapted for use in recombining said residual with said two channel representation to reconstruct an M-channel representation of said N-channel audio signal, wherein M is greater than two but not greater than N;

recording said residual on one or more second media, wherein said first and second media are distinct physical media; and

recording said control information.

72. (Currently Amended) The method of claim 71, wherein said first ~~media is the~~ medium is an audio portion of a compact disk (CD), and ~~wherein~~ said two channel representation ~~can be reproduced~~ is adapted for reproduction on a conventional CD player.

73. (Currently Amended) The method of claim 119, wherein said recording of said control information is on said one or more second media, and wherein said one or more second media ~~is the~~ is a CD-ROM portion of said CD.

74. (Original) The method of either of claims 71 or 117, wherein M equals N.



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75. (Original) The method of claim 74, wherein said residual contains (N-2) independent channels.

76. (Original) The method of claim 74, wherein said residual contains less than (N-2) independent channels.

77. (Currently Amended) The method of either of claims 71 or 117, further comprising:

compressing said residual prior to its recording.

78. (Currently Amended) The method of claim 77, wherein said control information ~~contains data on how said residual is compressed~~ further includes data for determining a technique for compressing said residual.

79. (Original) The method of either of claims 71 or 117, wherein the deriving from said N-channel audio signal a two channel representation is based upon a linear combination of a finite set of spatial harmonics.

80. (Currently Amended) A method for storing an N-channel audio signal, wherein N is an integer greater than two, comprising:

deriving from said N-channel audio signal a two channel representation based upon a linear combination of a finite set of spatial harmonics;

recording said two channel representation on a first medium;

forming additional information, comprising:

a residual dependent ~~upon the~~ upon a difference between said N-channel audio signal and said two channel representation, wherein said residual comprises a combination of zero and first order spatial harmonics which is linearly independent of said two channel representation; and

control information, including data ~~that can be used to recombine~~ adapted for use in recombining said residual with said two channel representation to



PAGE 6/24 * RCVD AT 10/14/2004 7:05:27 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-1/3 * DNIS:8729306 * CSID:8187157033 * DURATION (mm-ss):06-14

EXHIBIT "B"

reconstruct an M-channel representation of said N-channel audio signal, wherein M is greater than two but not greater than N;

recording said residual on one or more second media; and

recording said control information.

81. (Currently Amended) The method of claim 71, wherein ~~the recording of~~ said first medium is a rewritable memory.

82. (Original) The method of claim 81, further comprising:

compressing said two channel representation prior to its recording.

(Claims 83-88 have been cancelled.)

89. (Currently Amended) A method of storing N-channel audio data ~~on a CD~~ on a compact disk (CD), wherein N is an integer greater than two, comprising:

storing a two track reduction of said N-channel audio data, wherein said two track reduction is reproducible by playing said CD on a conventional audio CD player; ~~and~~

storing control information on said CD; and

storing additional audio data on said CD outside ~~of said~~ of an audio portion of said CD according to a distinct logical structure requiring a differing read process than the audio portion of the CD, wherein said two track reduction and said additional audio ~~information can~~ be data are adapted to be combined through use of said control information to reproduce an M-channel representation of said N-channel audio data, wherein M is greater than two but not greater than N.

90. (Currently Amended) The method of claim 89, wherein said additional audio ~~information~~ data is compressed.



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EXHIBIT "B"

91. (Currently Amended) The method of claim 90, wherein the control information ~~contains~~ further includes data ~~on how~~ for determining a technique for compressing said additional audio data ~~information is compressed~~.

92. (Original) The method of claim 89, wherein M is equal to N.

93. (Currently Amended) The method of claim 92, wherein said additional audio ~~information~~ data contains (N-2) independent channels.

94. (Currently Amended) The method of claim 92, wherein said additional audio ~~information~~ data contains less than (N-2) independent channels.

(Claims 95-106 have been cancelled.)

107. (Currently Amended) A method for storing an audio signal of two or more channels, comprising:

deriving data from the audio signal, said data comprising: ~~data, comprising:~~

a plurality of digital signals, wherein a first digital signal of said plurality of digital signals is a first two track audio signal; and

control information, ~~wherein a reproduction of~~ adapted for use in reproducing said audio ~~information~~ signal ~~can be produced~~ from said plurality of digital signals ~~by use of said control information~~;

storing said first digital signal on a first medium;

storing the remainder of said plurality of digital signals on one or more second media, wherein the first and second media have distinct logical structures requiring differing read processes; and

storing the control information.

108. (Previously Presented) The method of either of claims 4 or 89, where said additional audio data is stored in a CD-ROM portion of said CD.

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109. (Previously Presented) The method of claim 108, where said additional audio data is stored in a file format.

110. (Previously Presented) The method of claim 109, where the file format employs the ISO9660 standard.

111. (Currently Amended) The method of claim 7, wherein said first digital signal is stored on the first medium in an MP3 format.

112. (Previously Presented) The method of any of claims 7, 8, 111, or 107, wherein said one or more second media include a compact disk.

113. (Previously Presented) The method of claim 10, wherein said one or more second media include a supplemental compact disk.

114. (Currently Amended) The method of any of claims 7, 8, 10, 111, or 107, wherein said one or more second media ~~include the~~ include a hard drive of a personal computer.

115. (Previously Presented) The method of claim 107, wherein said first medium is a rewritable memory.

116. (Currently Amended) The method of claim 107, wherein said first medium ~~is the~~ is an audio portion of a compact disk (CD), and wherein said first digital signal ~~can be reproduced~~ is adapted for reproduction on a conventional CD player.

117. (Currently Amended) A method for storing an N-channel audio signal, wherein N is an integer greater than two, comprising:

deriving from said N-channel audio signal a two channel representation;

recording said two channel representation on a first medium;



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forming additional information, comprising:

a residual dependent ~~upon the~~ upon a difference between said N-channel audio signal and said two channel representation; and

control information, including data ~~that can be used to recombine~~ adapted for use in recombining said residual with said two channel representation to reconstruct an M-channel representation of said N-channel audio signal, wherein M is greater than two but not greater than N;

recording said residual on one or more second media, wherein the first and second media have distinct logical structures requiring differing read processes; and

recording said control information.

118. (Previously Presented) The method of claim 117, wherein said first medium is a rewritable memory.

119. (Currently Amended) The method of claim 117, wherein said first medium ~~is the~~ is an audio portion of a compact disk (CD), and wherein said ~~first digital signal can be reproduced~~ two channel representation is adapted for reproduction on a conventional CD player.

120. (Currently Amended) The method of claim 71, wherein said ~~first digital signal~~ two channel representation on the first medium is in an MP3 format.

121. (Previously Presented) The method of any of claims 71, 81, 117, or 120, wherein said one or more second media include a compact disk.

122. (Previously Presented) The method of claim 72, wherein said one or more second media include a supplemental compact disk.



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EXHIBIT "B"

123. (Currently Amended) The method of any of claims 71, 72, 81, 117, or 120, wherein said one or more second media ~~include the~~ include a hard drive of a personal computer.

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# UNITED STATES PATENT AND TRADEMARK OFFICE
## CERTIFICATE OF CORRECTION

PATENT NO. : 7,043,312

APPLICATION NO.: 09/505,556

DATED : May 9, 2006

INVENTOR(S) : Moorer

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In the Specification:

First page, column 1, lines 1-3, after "AUGMENTATION" delete "FOR HIGHER RESOLUTION AND MULTICHANNEL SOUND".

In the CLAIMS:

Claim 4, column 23, line 18, after "digital" insert --signal--.

Claim 10, column 23, line 53, delete "media;" and insert --media,--.

Claim 16, column 24, line 22, delete "no" and insert --not--.

Claim 23, column 24, line 52, delete "claim" and insert --claims--.

Claim 26, column 25, line 2, after "second" insert --media, wherein the first and second media have distinct logical structures--.

Claim 30, column 25, line 11, delete "claim" and insert --claims--.

Claim 31, column 25, line 13, delete "claim" and insert --claims--.

Claim 33, column 25, line 21, delete "claim" and insert --claims--.

Claim 34, column 25, line 23, delete "claim" and insert --claims--.

Claim 35, column 25, line 37, delete "recombination" and insert --recombining--.

Claim 38, column 26, line 14, delete "ia" and insert --is--.

Claim 39, column 26, line 16, delete "claim" and insert --claims--.

Claim 42, column 26, line 23, delete "claim" and insert --claims--.

Claim 44, column 26, line 29, delete "claim" and insert --claims--.

Claim 45, column 26, line 34, delete "claim" and insert --claims--.

Claim 46, column 26, line 36, delete "claim" and insert --claims--.

NOV. - 6 2006

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PATENT NO: 7,043,312